

Abstract

An optical sensor for a delivery device having a piston that displaces a substance, such as a fluid, from a reservoir. The optical sensor has a light source and a detector array for imaging encoding features disposed along a plunger rod coupled to the piston. By virtue of the pattern of encoding features, an absolute position of the plunger rod relative to a fiducial position may be determined uniquely. Thus, the volume of fluid remaining in the reservoir, the rate of fluid delivery, and proper loading of the reservoir may be accurately ascertained. Additionally, the encoding may serve to uniquely identify a version of the reservoir which may be supplied in various versions corresponding, for example, to differing concentrations of a therapeutic agent to be dispensed.

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